

**REMARKS/ARGUMENTS**

By this Amendment, claim 21 is amended and claim 39 is canceled. Claims 21, 24-38 and 40 are pending.

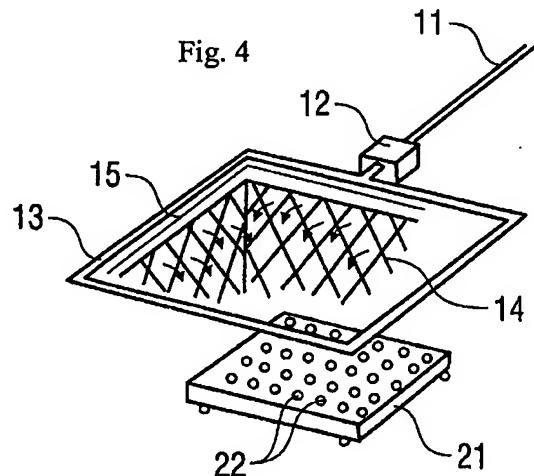
Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

**Indefiniteness Rejection of Claim 24**

Claim 24 stands rejected as being indefinite under 35 U.S.C. § 112, second paragraph, in its recitation of the expression "substantially grid-shaped". This rejection is respectfully traversed.

The expression "substantially grid-shaped" is not specifically defined in the specification, but its meaning is clearly suggested by Ref. No. 14 of Fig. 4 (depicted below). The meaning is further informed by the conventional definition of the term "grid" as "a network of uniformly spaced horizontal and perpendicular lines [or] something resembling such a network" (see Webster's Ninth New Collegiate Dictionary, p. 537, Merriam-Webster pub., 1985, attached). A person having ordinary skill in the art (a PHOSITA) would readily understand from Fig. 4 and the conventional definition of "grid" that a "substantially grid-shaped" inner wall is a wall comprised of a network of linear members divided into two groups: (1) a first group of approximately parallel linear members spaced apart approximately equally; and (2) a second group of approximately parallel linear members spaced apart approximately equally, wherein the first group members and the second group members intersect each other at an approximately constant angle. Fig. 4 makes it clear that "substantially grid-shaped" is not limited to linear members that are horizontal, vertical and/or perpendicular to each other.

Accordingly, reconsideration and withdrawal of the indefiniteness rejection of claim 24 are respectfully requested.



Rejections under 35 U.S.C. § 103

Claims 21, 24, 35 and 40 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over U.S. Patent No. 6,044,648 (Rode) in view of U.S. Patent No. 3,595,030 (Roslonski). Claims 25 and 26 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 4,481,779 (Barthel). Claim 27 and 28 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 3,618,336 (Palma). Claim 29 and 30 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 5,601,143 (Binder). Claim 31-34 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 5,976,871 (Walker et al.). Claim 36, 38, and 39 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of U.S. Patent No. 6,845,628 (Weng). Claim 37 stands rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Rode in view of Roslonski further in view of Weng further in view of U.S. Patent No. 5,546,756 (Ali). These rejections are respectfully traversed.

*Features of the Claimed Invention*

The present invention is based on the technical recognition that conventional cooling equipment using liquid cooling agents suffer from the presence of cooling agent lakes at the bottom of the cryovat. These lakes in conventional cooling equipment cause several problems as explained in the introductory portion of the description at pages 1 and 2. Firstly, the temperature constancy and temperature distribution inside the vat is unsatisfactory. Further, the protective bell can mist over on account of the cooling agent outgassing from the lakes at the bottom of the cryovat. Further, the temperature inside the cryovat cannot be adjusted or can only be adjusted with difficulty by changing the amount of liquid cooling agent introduced into the vat.

The invention provides cooling equipment which avoids the creation of cooling lakes at the bottom of the cooling space, and the problems associated therewith. Base claim 21 has been amended to specifically recite this aspect of the invention, which was previously claimed in claim 39.

Base claim 21 also specifies that the cooling agent supply line empties into the intermediate space between the inner wall and the outer wall and introduces the cooling agent in

liquid form into the porous buffer material of the intermediate space. Support for this limitation is apparent in the specification at, e.g., page 3, lines 6-26.

***Rode Emits Gaseous, not Liquid Refrigerant***

Rode pursues a different technical concept for improving the uniformity of product cooling by vaporizing all of the liquid refrigerant inside a coil (see Rode at, e.g., column 1, lines 59-62). Fig. 3 of Rode (cited in the Office Action and depicted at right) discloses an embodiment in which fan 54 circulates a cooling agent emitted from a cooling agent supply line (tube 66) through the intermediate space (plenums 56, 58, 60) and into the cooling space (chamber 50). Refrigerant is introduced into the cooling space (chamber 50) from the cooling agent supply line in a gaseous form (see, e.g., column 3, lines 2-5).

Thus, Rode does not disclose the introduction of the “cooling agent in liquid form into the porous buffer material of the intermediate space” as specified in base claim 21. Rode is furthermore irrelevant to the problem of lakes of liquid cooling agent formed at the bottom of the cooling space, which is addressed by the present invention.

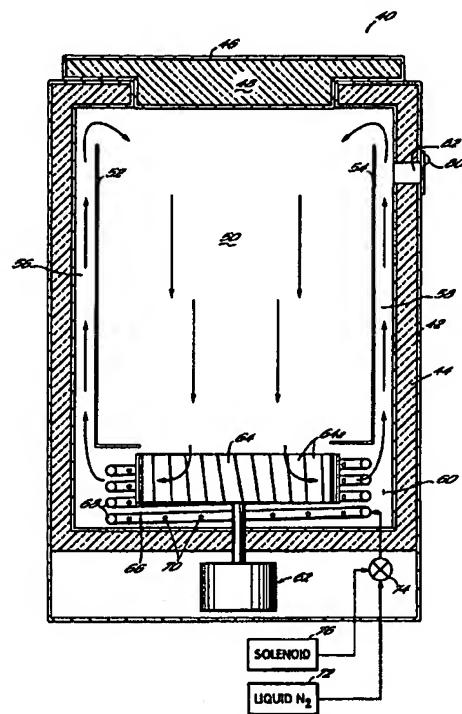


FIG. 3

***Roslonski Teaches Wrong Cooling Agent Flowing the Wrong Way***

Roslonski discloses a cooling apparatus in which a gaseous cooling agent is emitted from the cooling agent supply line (“tubing 15”), and exits the cooling space (“inner compartment 22”) through holes 36 into the intermediate space (“outer compartment 32”). See Roslonski at Fig. 2 and column 2, lines 33-40 and 53-65.

Thus, the direction of the flow of the cooling agent in Roslonski is from the cooling space into the insulating material of the intermediate space, which is the opposite of what is claimed by Applicants.

Moreover, Roslonski does not use a liquid cooling agent, but rather uses a gaseous refrigerant (see, e.g., Roslonski at column 1, lines 49 and 72, and column 2, line 35). Therefore,

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Roslonski, like Rode, is irrelevant to the problem of lakes of liquid cooling agent formed at the bottom of the cooling space, which is addressed by the present invention.

***Improper Combination of Incompatible Teachings***

A PHOSITA would not have been motivated to incorporate the porous buffer material of Roslonski in the intermediate space (i.e., plenums 56, 58, 60) of Rode with a reasonable expectation of success. A PHOSITA would have expected the porous buffer material of Roslonski to block the air circulation path (i.e., the flow of gaseous cooling agent from tube 66 through plenums 56, 58, 60, and into chamber 50, which is facilitated by fan 62), which is essential to the teachings of Rode. See, e.g., the Summary of the Invention of Rode at column 1, lines 36-58. A PHOSITA would have expected the proposed modification to the teachings of Rode to result in a device ineffective for rapidly cooling items in the chamber. As noted in *McGinley v. Franklin Sports Inc.*, 60 USPQ2D 1001, 1010 (Fed. Cir. 2001):

If references taken in combination would produce a “seemingly inoperative device,” we have held that such references teach away from the combination and thus cannot serve as predicates for a *prima facie* case of obviousness. *In re Sponnoble*, 405 F.2d 578, 587, 160 USPQ 237, 244(CCPA 1969) (references teach away from combination if combination produces seemingly inoperative device); see also *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127(Fed. Cir. 1984) (inoperable modification teaches away).

In addition, Rode and Roslonski teach the provision of gaseous cooling agents in the cooling space, and are therefore irrelevant to the problem of lakes of liquid cooling agent formed at the bottom of the cooling space, which is addressed by the present invention. A PHOSITA would have lacked motivation to consult or combine this non-analogous art to address the problems addressed by the invention.

***Proposed Combination Does Not Meet All Claimed Features***

The proposed combination of reference teachings fails to disclose or suggest the introduction of the cooling agent in liquid form into the porous buffer material of the intermediate space.

None of the additional reference teachings can be properly combined to remedy the aforementioned deficiencies of Roslonski and/or Rode, and therefore the claimed invention is not obvious in view of the cited art.

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Accordingly, reconsideration and withdrawal of the obviousness rejections are respectfully requested.

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

CAESAR, RIVISE, BERNSTEIN,  
COHEN & POKOTILOW, LTD.

By



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Attorneys for Applicants

March 25, 2009

Please charge or credit our  
Account No. 03-0075 as necessary  
to effect entry and/or ensure  
consideration of this submission.

that is green with growing  
r from incomplete fermenta-  
y to make plants grow —

rtle (*Chelonia mydas*) with a  
highly nutritious eggs  
ss foliage or foliage-bearing

[Greenwich, England] (1861)  
Greenwich used as the prime  
grid — called also Greenwich

INGED TEAL  
(3) : a small dabbling duck  
a chestnut head with a green  
wing specie

green with foliage  
akin to OE græstan to wesp  
n of kind wishes : HAIL 2 : a  
ner (~ed the candidate with  
response to (apathy ~ed the  
if (~ surprising sight ~ed her

OE gretan, fr. OE grætan; akin  
EP. LAMENT

meeting 2 : an expression of  
lural (holiday ~s)  
a message of goodwill and is  
is a birthday or a holiday)

gærtus] (1867) : any of a large  
sporozoan protozoans that  
sites — gregarine adj

gregarius of a flock or herd, fr.  
ein to collect, agere assemble

h others of one's kind : SOCIAL

r companionship : SOCIALE

of a plant : growing in a cluster

but not forming a true clus-  
te-gar-rously adv — gregarious

(1642) : of or relating to Pope

to Pope Gregory I 2 : of  
Gregorian chant

ator [J32, apostle of Armenia]

national church

endar in general use introduced

revision of the Julian calendar

merican colonies in 1752, and

or after 1700 11 days and the

years divisible by 400 should be

sic and rhythmically free litur-  
gh, fr. It. greggio] (1926) : being  
from a loom — used of textile

stalling rock consisting of quartz

and Saxony

of IrGael græuimin ill-humored

eld to be responsible for malfunc-

ation, fr. LL granata, fr. L. gen-

more at CORN] (1591) : a seed

a chemical agent (as tear gas)

) and that is thrown by hand

che)

rendre grenade] (1676) 1 : a

ades 2 : a member of a speci-

with grenades 2 : any of varie-

that are related to the cords and

compressed pointed tail — cali-

F, fr. grenade] (1852) 1 : a thin

us fibers 2 : a moderate reddish

pomegranates, and used in man-

estrous man-eating descendant of

dish poem Beowulf

Thomas Gresham] (1858) : an

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ne having the lesser interest than

the other to be hoarded or ex-

trema Green, Scotland] (1858)

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Frances

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monn

A. cine-

greylag

greyhounds

grible \grib'-əl\ n [prob. dim. of 'grub] (1838) : a small marine isopod crustacean (*Limnoria lignorum* or *L. terebrans*) that destroys submerged timber

grid \grid\ n [back-formation fr. gridiron] (1839) 1 : GRATING 2 : a

(1) : a perforated or ridged metal plate used as a conductor in a storage battery (2) : an electrode consisting of a mesh or a spiral of fine wire in an electron tube (3) : a network of conductors for distribution of electric power; also : a network of radio or television stations b : a network of uniformly spaced horizontal and perpendicular lines (as for locating points on a map); also : something resembling such a network (a road ~) c : GRIDIRON 2; broadly : FOOTBALL 3 : the starting positions of cars on a racecourse 4 : a device (as of glass) in a photocamera on which are located the characters to be exposed on the film as the text is composed

gridle \grid'-lē\ n [ME gridil gridiron, fr. ONF. fr. L. craticulum, dim. of craticus] (c. 14c) : a flat metal surface or pan on which food is cooked by dry heat

gridle cake n (1783) : PANCAKE

gridiron \grid'-jō-nəl\ n [ME gridrie] (14c) 1 : a grate for broiling food 2 : something consisting of or covered with a network 3 : a

gridlock \jäk'\ n (1980) 1 : a traffic jam in which a grid of intersecting streets is so completely congested that no vehicular movement is possible 2 : a situation resembling a gridlock (as in congestion or lack of movement)

gridlock \jäk'\ n (1980) 1 : a machine or device for grinding 2 : SUBMARINE 2

gridstone \grin-stōn\ n (13c) 1 : MILLSTONE 2 : a flat circular stone of natural sandstone that revolves on an axle and is used for grinding, shaping, or smoothing

grind \grin\ v (13c) 1 : an act of grinding b : the sound of grinding 2 : dreary monotonous labor or routine; esp : intensive study 3 : material obtained by grinding to a particular degree of fineness (a percolator ~ of coffee) 4 : the act of rotating the hips in an erotic manner syn see WORK

grinder \grin-dər\ n (14c) 1 a : MOLAR b pl : TEETH 2 : one that

grind 3 : a machine or device for grinding 4 : SUBMARINE 2

grid-out vi (ca. 1947) : to produce in a mechanical way (*grid out his teeth*)

gridstone \grin-stōn\ n (13c) 1 : MILLSTONE 2 : a flat circular

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gringo \grin'-gō\ n, pl gringos [Sp. alter. of griego Greek, stranger; fr. L. *Grecus* Greek] (1849) : a foreigner in Spain or Latin America esp. when of English or American origin — often used disparagingly

grasp \grasp\ v gripped; griping [ME grippen, fr. OE grippan; akin to

*grīn*] (12c) 1 : to seize or hold firmly 2 : to hold strongly

grasp-in-EV adj

grasp n (bef. 12c) 1 a : a strong or tenacious grasp b : strength in

grapping c : manner or style of gripping 2 a : a firm tenacious hold typically giving control, mastery, or understanding (could not free himself from the ~ of these new ideas) b : mental grasp : APPREHEN-

SION 3 : a part or device for gripping 4 : a part by which something is grasped; esp : HANDLE 5 : TRAVELING BAG 6 : STAGEHAND

grape \grāp\ v gripped; griping [ME gripen, fr. OE gripan; akin to OHG *grīfan*] to grasp, Lith. *grībēti*] vi (bef. 12c) 1 : SEIZE GRASP 2 : a

gratify \grāt-fy\ v (13c) 1 : to afflict, distress b : irritate, vex (*graped by new income-tax provisions*) 2 : to cause pinching and spasmodic pain in the bowels of ~v 1 : to experience gripes 2 : to complain with grumbling — griper n

gripe \grīp\ n (13c) 1 : CLUTCH, GRASP broadly : CONTROL, MASTERY 2 : GRIEVANCE, COMPLAINT 3 : a pinching spasmodic intestinal pain usu. used in pl 4 : HANDLE GRIP 5 : a device (as a brake) for grasping or holding

gripple \grīp\ n [F. lit. seizure] (1776) : an acute febrile contagious

virus disease identical with or resembling influenza — grippy \grīp-ē-

adj

grisaille \grī-zēl\ -zēl(s)\ n [F. fr. gris gray; fr. MF — more at GRIZZLE]

(1848) : decoration in tones of a single color and esp. gray designed to

produce a three-dimensional effect

Griselda [grīz'-ēl-dā] n [ME, fr. It.] : a woman of humble origins in

medieval legend who endures tests of wifely patience laid on her by her

well-born husband

griseo-fulvin \grīz-ē-fūl-vēn\ gris-, -fēl-\ n [NL *griseofulvum*, spec.

epithet of *Penticillium griseofulvum*, mold from which it is ob-

tained] (1939) : an antibiotic C<sub>17</sub>H<sub>14</sub>ClO<sub>6</sub> used systemically in treating

superficial infections by fungi

griseous \grīz-ē-s, -grīz\ adj [ML *griseus*, of Grac origin; akin to

OHG *grīs*] (1819) 1 : of a light color or white mottled with black or

brown : GRIZZLED

grisette \grīz-ēt\ n [F. grisette, cheap unbleached cloth, fr. gris] (1723)

1 : a young French working-class woman 2 : a young woman combining part-time prostitution with some other occupation

gris-gris \grīz-ēgrīz\ n, pl gris-gris \grīz-ēgrīz\ [F., of African origin; akin to

Balante *grigri amuleti*] (1698) : an amulet or incantation used chiefly

by people of African Negro ancestry

grisly \grīz-lē\ adj grislier; -est [ME, fr. OE *grislic*, fr. gris- (akin to

OE *grīsan* to fear); akin to OHG *grisenlich* terrible] (bef. 12c) 1 : in-

~ under the blank, cold sky — D. H. Lawrence 2 : inspiring disgust

grist \grist\ n [ME, fr. OE *grist*; skin to OE *grindan* to grind] (bef. 12c)

1 : a grain or a batch of grain for grinding b : the product obtained from a grit of grain including the flour or meal and the grain offals 2 : a required or usual amount 3 : matter of interest or value forming the basis of a story or analysis 4 : something turned to advantage used esp. in the phrase *grist for one's mill*

gristle \grīs-əl\ n [ME *gristil*, fr. OE *gristile*; akin to MLG *gristel* gristle]

(bef. 12c) : CARTILAGE broadly : tough cartilaginous, tendinous, or

fibrous matter esp. in table meats

gristly \grīs-lē\ adj grislier-est (14c) : consisting of or containing

grist-mill \grist-mil\ n (1602) : a mill for grinding grain

grim reaper n, often cap G&R (ca. 1927) : death esp. when personified as a man or skeleton with a scythe

grimy \grīmē\ adj grimier; -est (1612) : full of or covered with grime

: DIRTY — grim-ness

grin \grin\ vi grimed; grin-ning [ME *grennen*, fr. OE *grennan*; akin to

OHC *grennen* to snarl] (bef. 12c) : to draw back the lips so as to show

the teeth esp. in amusement or laughter; broadly : SMILE — grin n

grinner n — grin-ning-ly \grin'-i-lē\ adv

grind \grind\ vb ground; grinding [ME *grinden*, fr. OE *grindan* akin to L *frendere* to crush, grind, Gr. *chondros* grain; OE *grētan*] (bef. 12c) 1 : to reduce to powder or small fragments by friction (as in a mill or with the teeth) 2 : to wear down, polish, or sharpen by friction : WHET (~ an ax) 3 a : to rub or press harshly (ground the cigarette out with his heel) b : to press together with a rotating motion (~ the teeth) 4 : OPPRESS, HARASS 5 : to operate or produce by turning a crank (~ a hand organ) ~ vi (bef. 12c) 1 : to perform the operation of grinding 2 : to become pulverized, polished, or sharpened by friction 3 : to move with difficulty or friction esp. so as to make a grating noise (*ring gears*) 4 : DRUDG-  
EY : to study hard (~ for an exam) 5 : to rotate the hips in an erotic manner (as in a burlesque striptease) — grin-ning-ly \grin'-i-lē\ adv

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